# SUBJECT INDEX

Absconding
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425
Accessory gland
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167
*Achaea janata* L.
Field life-tables and key mortality factors of *Achaea janata* Linn on castor 331
*Acridotheres tristis*
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
Activators
Mitochondrial adenosine triphosphatase of *Penetrocephalus ganapatii* (Cestoda: Pseudophyllidea) in relation to activators and inhibitors 249
*Aedes aegypti*
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325
Age structure
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211
Aggression
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139
Allometry
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341
Allotriploidy
Induction of allotriploids in the hybrids of *Oreochromis mossambicus* female × red tilapia male 351
Anemia
Insecticide induced hematological changes in pigeons 133
*Anopheles stephensi*
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325
*Antheraea assama*
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99
Ant-plant mutualism
Factors affecting ant (Formicidae: Hymenoptera) visits to the extrafloral nectaries of *Croton bonplandianum* Baill 57
Aphidophagous syrphids
Relative development and voracity of six species of Aphidophagous syrphids in cruciferous crops 267
*Apis dorsata*
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425
Apocrine
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1
Approximate digestibility
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99
Arithmatic
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385
ATPase
Mitochondrial adenosine triphosphatase of *Penetrocephalus ganapatii* (Cestoda: Pseudophyllidea) in relation to activators and inhibitors 249
*Aularches scabiosae* F.
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F. (Orthoptera: Insecta) 391
*Azadirachta indica*
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
*Barytelphusa cunicularis*
Isolation of neurosecretory hyperglycemic hormone from the eyestalks of freshwater crab, *Barytelphusa cunicularis* 379
Bat
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149
Berried
Maturity and breeding of the mud crab, *Scylla*

*serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341
Bioenergetics
Energy transfer efficiency in three hymenopteran egg parasitoids of *Homoeocerus prominulus* (Tagus) (Insecta: Heteroptera: Coreidae) 181
Biofouling
Byssal threads of *Mytilopsis sallei* (Recluz) and their adhesive strength 65
Biotopes
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341
Bird behaviours
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
*Bombyx mori*
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Sodium coupled nutrient transport in the midgut tissue of the silkworm, *Bombyx mori* L. 121
Brain
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41
Breeding
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341
Bulk density of soil
Factors affecting the surface cast production by some earthworms of Indian tropics 431
Byssal adhesion
Byssal threads of *Mytilopsis sallei* (Recluz) and their adhesive strength 65

C:N ratio
Role of soil fauna in decomposition of rice and sorghum straw 275
*Callosobruchus maculatus*
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359
*Campoletis chlorideae*
*Campoletis chlorideae* Uchida (Hymenoptera: Ichneumonidae) as a parasite of *Helicoverpa armigera* (Hub.) (Lepidoptera: Noctuidae) in southwest India 259
Carboxylesterase
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399
Caryophylliasis
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127
Chicken
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35
*Clarias batrachus*
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127
Cocaine
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35
Codominant
Induction of allotriploids in the hybrids of *Oreochromis mossambicus* female × red tilapia male 351
Collembola
Role of soil fauna in decomposition of rice and sorghum straw 275
Composition
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211
Consumption
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99
Conversion of digested food
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99
Conversion of ingested food
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99
*Coranus soosaii*
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305
Coreid host
Energy transfer efficiency in three hymenopteran egg parasitoids of *Homoeocerus prominulus* (Tagus) (Insecta: Heteroptera: Coreidae) 181
Crab
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41
*Croton bonplandianum*
Factors affecting ant (Formicidae: Hymenoptera) visits to the extrafloral nectaries of *Croton bonplandianum* Baill 57
Cruciferous crops
Relative development and voracity of six species of Aphidophagous syrphids in cruciferous crops 267
*Culex quinquefasciatus*
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325

*Cyprinus carpio*
Effect of diethylstilbestrol on growth and food conversion of common carp, *Cyprinus carpio* (Linn.) 85
Cytochemistry
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Decomposition
Role of soil fauna in decomposition of rice and sorghum straw 275
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149
Development
Relative development and voracity of six species of Aphidophagous syrphids in cruciferous crops 267
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305
Diethylstilbestrol
Effect of diethylstilbestrol on growth and food conversion of common carp, *Cyprinus carpio* (Linn.) 85
Diffusing capacity
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385
Diffusion distance
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385
Disappearance
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35
Diurnal rhythms
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
*Djombangia penetrans*
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127
*Dolichos lab lab*
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359
Duplex
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1
Concurrent occurrence of holocrine type-degeneration along with high reproductive function in the secretory epithelia of the duplex of two Noctuid species, *Spodoptera litura* (F) and *Heliothis armigera* (H) (Lepidoptera: Noctuidae) 15

Early stage loss
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Effective rate of rearing
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Egg production
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Egg volume
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211
Ejaculatory duct
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233
Emergence inhibition
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325
Endocytosis
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1
Endosulfan
Sublethal effects of organochlorine insecticide (endosulfan) on protein, carbohydrate and lipid contents in liver tissues of *Oreochromis mossambicus* 51
Enzyme activity
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
Eri silkworm
Hydroxysteroid dehydrogenases in the ovary of larva, pupa and adult eri silkworm, *Philosamia ricini* (Hutt.)—A histochemical study 113
*Estrilda amandava*
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89
*Euproctis fraterna*
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
*Eupterote mollifera*
Effect of feeding tender and senescent leaf by

*Eupterote mollifera* and tender leaf and flower by *Spodoptera exigua* on food utilization 77

Eyestalk
Isolation of neurosecretory hyperglycemic hormone from the eyestalks of freshwater crab, *Barytelphusa cunicularis* 379

Fecundity
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211

Feeding
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89

Field capacity
Factors affecting the surface cast production by some earthworms of Indian tropics 431

Field life-tables
Field life-tables and key mortality factors of *Achaea janata* Linn on castor 331

Foetal membranes
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149

Follicle
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera. Noctuidae) 405

Food consumption
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313

Food utilization
Effect of feeding tender and senescent leaf by *Eupterote mollifera* and tender leaf and flower by *Spodoptera exigua* on food utilization 77
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F (Orthoptera: Insecta) 391

Foraging
Foraging activity and temperature relations in the ponerine ant *Harpegnathos saltator* Jerdon (Formicidae) 367

Free ranging rhesus monkey
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139

Freshwater tropical copepod
Sex-related biochemical investigation of the diaptomid, *Heliodiaptomus viduus* Gurney (Crustacea: Copepoda) 175

Gills
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Glycerol formation
Glycerol formation in silkworm eggs 187

Growth
Effect of diethylstilbestrol on growth and food conversion of common carp, *Cyprinus carpio* (Linn.) 85

Growth efficiency
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193

Growth rate
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193

Harmonic mean
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385

Hatchability
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305

Heat shock
Induction of allotriploids in the hybrids of *Oreochromis mossambicus* female × red tilapia male 351

*Helicoverpa armigera*
*Campoletis chlorideae* Uchida (Hymenoptera: Ichneumonidae) as a parasite of *Helicoverpa armigera* (Hub.) (Lepidoptera: Noctuidae) in southwest India 259

*Heliodiaptomus viduus*
Sex-related biochemical investigation of the diaptomid, *Heliodiaptomus viduus* Gurney (Crustacea: Copepoda) 175

Hematology
Insecticide induced hematological changes in pigeons 133

Hemiorchidectomy
Effect of indomethacin on testicular hypertrophy in hemiorchidectomized immature rats 419

Hilus
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167

Histopathology
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127

Holocrine
Concurrent occurrence of holocrine type-degeneration along with high reproductive function in the secretory epithelia of the duplex of two Noctuid species, *Spodoptera litura* (F). and *Heliothis armigera* (H) (Lepidoptera: Noctuidae) 15
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1
Honeybee
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425
Hopping
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89
Hormone
Pheromonal and hormonal control of reproduction in the freshwater prawn, *Macrobrachium kistnensis* 95
Hydroxysteroid dehydrogenases
Hydroxysteroid dehydrogenases in the ovary of larva, pupa and adult eri silkworm, *Philosamia ricini* (Hutt.)—A histochemical study 113
Hymenopteran parasitoids
Energy transfer efficiency in three hymenopteran egg parasitoids of *Homoeocerus prominulus* (Tagus) (Insecta: Heteroptera: Coreidae) 181
Hyperglycemic hormone
Isolation of neurosecretory hyperglycemic hormone from the eyestalks of freshwater crab, *Barytelphusa cunicularis* 379
Hyperparasitism
*Campoletis chlorideae* Uchida (Hymenoptera: Ichneumonidae) as a parasite of *Helicoverpa armigera* (Hub.) (Lepidoptera: Noctuidae) in southwest India 259

Indian myna
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
Indomethacin
Effect of indomethacin on testicular hypertrophy in hemiorchidectomized immature rats 419
Induction
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399
Inhibitors
Mitochondrial adenosine triphosphatase of *Penetrocephalus ganapatii* (Cestoda: Pseudophyllidea) in relation to activators and inhibitors 249
Insect growth regulators
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325
Insecticide
Insecticide induced hematological changes in pigeons 133
*Isoparorchis hypselobagri*
Scanning electron microscopic observations on surface topography of *Isoparorchis hypselobagri* (Billet 1898) Odhner 1927 373

Key mortality factors
Field life-tables and key mortality factors of *Achaea janata* Linn on castor 331

Leaf age
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F (Orthoptera: Insecta) 391
Leaf extract
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
Light
Foraging activity and temperature relations in the ponerine ant *Harpegnathos saltator* Jerdon (Formicidae) 367
Liver tissues
Sublethal effects of organochlorine insecticide (endosulfan) on protein, carbohydrate and lipid contents in liver tissues of *Oreochromis mossambicus* 51
Lytocestus indicus
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127

*Macrobrachium kistnensis*
Pheromonal and hormonal control of reproduction in the freshwater prawn, *Macrobrachium kistnensis* 95
Man-made material
Shell structure and shell strength in Cirripedes 223
Mantle
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243
Marine
Byssal threads of *Mytilopsis sallei* (Recluz) and their adhesive strength 65
Shell structure and shell strength in Cirripedes 223
Mass loss
Role of soil fauna in decomposition of rice and sorghum straw 275

Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Mating
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305

Maturity
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341

Mechanical strength
Shell structure and shell strength in Cirripedes 223

Merocrine
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1

Meso-invertebrates
Role of soil fauna in decomposition of rice and sorghum straw 275

Metanephrine
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35

Microanatomy
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Microarthropods
Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Micromorphology
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Midgut
Sodium coupled nutrient transport in the midgut tissue of the silkworm, *Bombyx mori* L. 121

Mites
Role of soil fauna in decomposition of rice and sorghum straw 275

Mitochondria
Mitochondrial adenosine triphosphatase of *Penetrocephalus ganapatii* (Cestoda: Pseudophyllidea) in relation to activators and inhibitors 249

*Moina micrura*
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211

Molossidae
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149

Morphometrics
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Mud crab
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341

Mytilids
Byssal threads of *Mytilopsis sallei* (Recluz) and their adhesive strength 65

Nectar presentation
Factors affecting ant (Formicidae: Hymenoptera) visits to the extrafloral nectaries of *Croton bonplandianum* Baill 57

Needle litter
Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Neonate sensitivity
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399

Neuroendocrine control
Osmoregulatory ability of *Penaeus indicus* H Milne Edwards in relation to varying salinities 105

Neurosecretion
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41

Nitrogen
Role of soil fauna in decomposition of rice and sorghum straw 275

Nitrogen budget
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359

Norepinephrine
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35

Nutrient transport
Sodium coupled nutrient transport in the midgut tissue of the silkworm, *Bombyx mori* L. 121

Nutrients
Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Nutritional changes
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F (Orthoptera: Insecta) 391

Nutritional indices
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399

Ontogeny
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139

*Oreochromis mossambicus*
Sublethal effects of organochlorine insecticide (endosulfan) on protein, carbohydrate and lipid contents in liver tissues of *Oreochromis mossambicus* 51

*Oryctes rhinoceros*
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233

Osmoregulatory ability
Osmoregulatory ability of *Penaeus indicus* H Milne Edwards in relation to varying salinities 105

Ovary
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41
Hydroxysteroid dehydrogenases in the ovary of larva, pupa and adult eri silkworm, *Philosamia ricini* (Hutt.)—A histochemical study 113

Oviposition pattern
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305

*Papilio demoleus*
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193

Parasitism
*Campoletis chlorideae* Uchida (Hymenoptera: Ichneumonidae) as a parasite of *Helicoverpa armigera* (Hub.) (Lepidoptera: Noctuidae) in southwest India 259

*Penaeus indicus*
Osmoregulatory ability of *Penaeus indicus* H Milne Edwards in relation to varying salinities 105

Penfluron
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193

Periostracum
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243

*Perna viridis*
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243

Pesticide monitoring
Insecticide induced hematological changes in pigeons 133

Phagosome
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproduction tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1

Phase angle difference
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89

*Phaseolus radiatus*
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359

Phenoloxidase
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243

Phenols
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243

Phenoxybenzamine
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35

Pheromone
Pheromonal and hormonal control of reproduction in the freshwater prawn, *Macrobrachium kistnensis* 95

Photoperiod
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89

*Pinus kesiya* R
Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Placentation
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149

*Pongamia glabra*
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313

Population density
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211

Principal gland
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167

Proteases
Sodium coupled nutrient transport in the midgut tissue of the silkworm, *Bombyx mori* L. 121
Protein fraction
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167
Pupation rate
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Purification
Isolation of neurosecretory hyperglycemic hormone from the eyestalks of freshwater crab, *Barytelphusa cunicularis* 379

Reduviidae
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167
Reproduction
Pheromonal and hormonal control of reproduction in the freshwater prawn, *Macrobrachium kistnensis* 95
Reproductive rate
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27
Reserpine
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35
*Ricinus communis*
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
$R_m$ value
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167
Rockbee
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425
Roosting
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
Rutin
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399

Scanning electron microscope
Scanning electron microscopic observations on surface topography of *Isoparorchis hypselobagri* (Billet 1898) Odhner 1927 373
Sclerotization
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243
Seasonal changes
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
Seed dispersal
Factors affecting ant (Formicidae: Hymenoptera) visits to the extrafloral nectaries of *Croton bonplandianum* Baill 57
Sertoli cells
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405
Sex-related biochemical compos
Sex-related biochemical investigation of the diaptomid, *Heliodiaptomus viduus* Gurney (Crustacea: Copepoda) 175
Silkworm eggs
Glycerol formation in silkworm eggs 187
Spermatid
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405
Spermatids
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233
Spermatocyte
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405
Spermatogonia
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405
Sperm function
Concurrent occurrence of holocrine type-degeneration along with high reproductive function in the secretory epithelia of the duplex of two Noctuid species, *Spodoptera litura* (F) and *Heliothis armigera* (H) (Lepidoptera: Noctuidae) 15
Spleen
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35
*Spodoptera exigua*
Effect of feeding tender and senescent leaf by *Eupterote mollifera* and tender leaf and flower by *Spodoptera exigua* on food utilization 77
*Spodoptera litura*
Effect of rutin on the neonate sensitivity, dietary

utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399
Spot-assay
Insecticide induced hematological changes in pigeons 133
Straw
Role of soil fauna in decomposition of rice and sorghum straw 275
Sublethal effects
Sublethal effects of organochlorine insecticide (endosulfan) on protein, carbohydrate and lipid contents in liver tissues of *Oreochromis mossambicus* 51
Submission
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139

Surface cast production
Factors affecting the surface cast production by some earthworms of Indian tropics 431
Swamp catfish
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291
Swarming
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425

Tectona grandis
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F (Orthoptera: Insecta) 391
Temperature
Foraging activity and temperature relations in the ponerine ant *Harpegnathos saltator* Jerdon (Formicidae) 367
Testicular follicles
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233

Testicular hypertrophy
Effect of indomethacin on testicular hypertrophy in hemiorchidectomized immature rats 419
Testis
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405
Testosterone
Effect of indomethacin on testicular hypertrophy in hemiorchidectomized immature rats 419
Thoracic ganglion
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41

Throughput soils
Factors affecting the surface cast production by some earthworms of Indian tropics 431
Transit-activity
Foraging activity and temperature relations in the ponerine ant *Harpegnathos saltator* Jerdon (Formicidae) 367
Trend analysis
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139

Tropical barnacle
Shell structure and shell strength in Cirripedes 223
Tropical earthworms
Factors affecting the surface cast production by some earthworms of Indian tropics 431
Type-degeneration
Concurrent occurrence of holocrine type-degeneration along with high reproductive function in the secretory epithelia of the duplex of two Noctuid species, *Spodoptera litura* (F) and *Heliothis armigera* (H) (Lepidoptera: Noctuidae) 15

Uptake
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35

Vasa deferentia
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233
*Vigna unguiculata*
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359
Vitellogenesis
Hydroxysteroid dehydrogenases in the ovary of larva, pupa and adult eri silkworm, *Philosamia ricini* (Hutt.)—A histochemical study 113
Voracity
Relative development and voracity of six species of Aphidophagous syrphids in cruciferous crops 267

*Wallago attu*
Scanning electron microscopic observations on surface topography of *Isoparorchis hypselobagri* (Billet 1898) Odhner 1927 373
Water-blood barrier
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385
Watery saliva
Gel electrophoretic studies with reference to functional morphology of the salivary glands of

*Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167

XRD-473
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325

Zootoxic
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167

## AUTHOR INDEX

Agarwala B K
Relative development and voracity of six species of Aphidophagous syrphids in cruciferous crops 267

Alexander P Murphy
*see* Ambrose Dunston P 305

Altaff K
Sex-related biochemical investigation of the diaptomid, *Heliodiaptomus viduus* Gurney (Crustacea: Copepoda) 175

Amaldoss G
Fine structure with regard to sperm functions of the ductus ejaculatoris duplex of the male reproductive tract of *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae) 1
Concurrent occurrence of holocrine type-degeneration along with high reproductive function in the secretory epithelia of the duplex of two Noctuid species, *Spodoptera litura* (F) and *Heliothis armigera* (H) (Lepidoptera: Noctuidae) 15
Persistent occurrence of spermatogenesis in the adult testes of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 405

Amalraj Dominic
Insect growth regulator XRD-473 (OMS 3031), a prospective compound for control of mosquito vectors 325

Ambrose Dunston P
Impact of mating on the post-embryonic development of *Coranus soosaii* Ambrose and Vennison (Insecta—Heteroptera—Reduviidae) 305

Anita Pandey
Gill diffusing capacity of a freshwater major carp, *Labeo rohita* (Ham.) in relation to body weight 385

Ayoub R S
Effect of indomethacin on testicular hypertrophy in hemiorchidectomized immature rats 419

Badwaik N
*see* Gopalakrishna A 149

Barah A
Consumption and utilization of food in different instars of muga silkworm *Antheraea assama* Westwood 99

Benchamin K V
Effect of cold storage of newly hatched larvae on survival rate, growth and egg production in silkworm *Bombyx mori* L. 27

Bharathi M S
Sclerotization of the periostracum of the marine bivalve *Perna viridis* (Linnaeus) 243

Bhatnagar V S
*see* Pawar C S 259

Bhaumik A K
*see* Agarwala B K 267

Bilapate G G
*see* Gaekwad B B 331

Chandrakantha J
Nitrogen budget of *Callosobruchus maculatus* larva developing in different host seed species 359

Chandran M R
*see* Altaff K 175

Chandrashekar P M
*see* Geethabali 187

Chockalingam S
*see* Somasundaram P 193

Chopra G
*see* Lekha Arun 275

Choudhury Chandana
*In vitro* studies on uptake, storage and disappearance of norepinephrine in spleen of white leghorn chicken 35

Das A K
*see* Ojha Jagdish 291

Dhandayuthapani S
Mitochondrial adenosine triphosphatase of *Penetrocephalus ganapatii* (Cestoda: Pseudophyllidea) in relation to activators and inhibitors 249

Diwan A D
Osmoregulatory ability of *Penaeus indicus* H Milne Edwards in relation to varying salinities 105

Gaikwad B B
Field life-tables and key mortality factors of *Achaea janata* Linn on castor 331
Ganesan R M
Sublethal effects of organochlorine insecticide (endosulfan) on protein, carbohydrate and lipid contents in liver tissues of *Oreochromis mossambicus* 51
Ganeshaiah K N
*see* Veena T 57
Garg B D
*see* Choudhury Chandana 35
Geethabali
Glycerol formation in silkworm eggs 187
Ghumare S S
Effect of rutin on the neonate sensitivity, dietary utilization and mid-gut carboxylesterase activity of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae) 399
Gilbert F S
*see* Agarwala B K 267
Gopalakrishna A
Morphogenesis of the foetal membranes and placentation in the Indian molossid bat, *Chaerephon plicata* (Buchanan) 149
Goswami M C
*see* Barah A 99
Gupta S R
*see* Lekha Arun 275

Hooli M A
*see* Hurkadli H K 113
Hurkadli H K
Hydroxysteroid dehydrogenases in the ovary of larva, pupa and adult eri silkworm, *Philosamia ricini* (Hutt.)—A histochemical study 113

Jacob J Prasanth
Impact of age correlated biochemical changes of host plant on food consumption and utilization efficiency of *Aularches scabiosae* F (Orthoptera: Insecta) 391
Jadhav D R
*see* Pawar C S 259
Jayaraman J
*see* Ganesan R M 51
Jebakumar S R D
*see* Ganesan R M 51
Joshi P C
Neurosecretion of brain and thoracic ganglion and its relation to reproduction in the female crab, *Potamon koolooense* (Rathbun) 41

Karande A A
*see* Udhayakumar M 65
Shell structure and shell strength in Cirripedes 223
Krishnamoorthy R V
Factors affecting the surface cast production by some earthworms of Indian tropics 431
Kumar A R V
*see* Veena T 57
Kunwar G K
*see* Anita Pandey 385

Lahiri Pulak
*see* Mandal Aditya 133
Laxminarayana A
*see* Diwan A D 105
Lekha Arun
Role of soil fauna in decomposition of rice and sorghum straw 275

Machale P R
*see* Nagabhushanam R 95, 379
Mahabal Anil
Diurnal rhythms and seasonal changes in the roosting behaviour of Indian myna *Acridotheres tristis* (Linnaeus) 199
Mandal Aditya
Insecticide induced hematological changes in pigeons 133
Mariamma Jacob
Differentiation of male reproductive system in *Oryctes rhinoceros* (Coleoptera: Scarabaeidae) 233
Mathavan S
*see* Chandrakantha J 359
Morrison M Noble
Gel electrophoretic studies with reference to functional morphology of the salivary glands of *Acanthaspis pedestris* Stal. (Insecta: Heteroptera: Reduviidae) 167
Mukherjee S N
*see* Ghumare S S 399
Munshi Datta J S
*see* Anita Pandey 385
Murugan N
Population dynamics of *Moina micrura* Kurz (Cladocera: Moinidae) inhabiting a eutrophic pond of Madurai (south India) 211
Muthukrishnan J
*see* Senthamizhselvan M 77
*see* Chandrakantha J 359

Nagabhushanam R
Pheromonal and hormonal control of reproduction in the freshwater prawn, *Macrobrachium kistnensis* 95
Isolation of neurosecretory hyperglycemic hor-

mone from the eyestalks of freshwater crab, *Barytelphusa cunicularis* 379
Nanjundappa T
Effect of diethylstilbestrol on growth and food conversion of common carp, *Cyprinus carpio* (Linn.) 85
Neelakantan B
*see* Prasad P N 341
Nellaiappan K
*see* Dhandayuthapani S 249

Ojha Jagdish
Morphometrics, micromorphology, microanatomy and cytochemistry of the gills of a swamp catfish, *Chaca chaca* (Ham.) 291

Pandey K C
*see* Tewari S K 373
Pandian T J
*see* Varadaraj K 351
Pawar C S
*Campoletis chlorideae* Uchida (Hymenoptera: Ichneumonidae) as a parasite of *Helicoverpa armigera* (Hub.) (Lepidoptera: Noctuidae) in southwest India 259
Pendharkar Y D
*see* Gopalakrishna A 149
Prasad P N
Maturity and breeding of the mud crab, *Scylla serrata* (Forskal) (Decapoda: Brachyura: Portunidae) 341

Rajadurai S
Energy transfer efficiency in three hymenopteran egg parasitoids of *Homoeocerus prominulus* (Tagus) (Insecta: Heteroptera: Coreidae) 181
Raju P Jayarama
*see* Benchamin K V 27
Ramalingam K
*see* Bharathi M S 243
Reba Chakravarty
Caryophylliasis in the catfish, *Clarias batrachus* L.: some histopathological observations 127
Reddy C Chandrasekhara
*see* Venkatesh G 425
Reddy M Vikram
Mass loss and concentrations of nutrients in relation to microarthropod abundance, during needle decomposition in a pine plantation 285

Samson M V
*see* Barah A 99
Sarangi S K
*see* Subramanyam M V V 121
Sarojini R
*see* Nagabhushanam R 95, 379
Senthamizhselvan M
Effect of feeding tender and senescent leaf by *Eupterote mollifera* and tender leaf and flower by *Spodoptera exigua* on food utilization 77
Sharathchandra H C
*see* Shivashankar T 367
Sharma R N
*see* Ghumare S S 399
Shivashankar T
Foraging activity and temperature relations in the ponerine ant *Harpegnathos saltator* Jerdon (Formicidae) 367
Singh Bishakha
*see* Ojha Jagdish 291
Singh Rajbir
Ontogeny of aggressive and submissive behaviour in free living rhesus monkeys (*Macaca mulatta*) 139
Somasundaram P
Sublethal effects of penfluron on the feeding physiology of *Papilio demoleus* Linn (Lepidoptera: Papilionidae) 193
Sridhar S
Effect of *Azadirachta indica* and *Pongamia glabra* leaf extracts on food utilization and modulation of efficiency of digestive enzymes in *Euproctis fraterna* (Lepidoptera: Lymantridae) 313
Subbaraj R
*see* Subramanian P 89
Subramanian P
Seasonal changes in the timing of hopping and feeding activities of a tropical bird (*Estrilda amandava*) under natural photoperiod 89
Subramanyam M V V
Sodium coupled nutrient transport in the midgut tissue of the silkworm, *Bombyx mori* L. 121
Sulochana Chetty J
*see* Sridhar S 313
Sushma Rishi
*see* Choudhury Chandana 35

Tewari S K
Scanning electron microscopic observations on surface topography of *Isoparorchis hypselobagri* (Billet 1898) Odhner 1927 373

Udhayakumar M
Byssal threads of *Mytilopsis sallei* (Recluz) and their adhesive strength 65
*see* Karande A A 223

Vaidya V G
*see* Mahabal Anil 199
Varadaraj K
Induction of allotriploids in the hybrids of *Oreochromis mossambicus* female red tilapia male 351

Varghese T J
*see* Nanjundappa T 85
Veena T
Factors affecting ant (Formicidae: Hymenoptera) visits to the extrafloral nectaries of *Croton bonplandianum* Baill 57
Veena Tandon
*see* Reba Chakravarty 127
Veeresh G K
*see* Shivashankar T 367
Velayudhan R
*see* Amalraj Dominic 325
Venkatesh G
Rates of swarming and absconding in the giant honey bee, *Apis dorsata* F. 425
Vijayalakshmi Rao
*see* Benchamin K V 27

Yousif W H
*see* Ayoub R S 419